

Abstract

Objective: The aim of this study was to determine the structural modeling of addiction severity based on the health and support of the original family through the mediating role of differentiation of self in a group of drug addicts in Mashhad. **Method:** This research was a descriptive-correlational study of structural equation. Out of 300 addicts presenting to Mashhad's addiction treatment centers, 169 people were selected through convenience sampling method according to Morgan table. The number of 19 questionnaires was excluded from the final analysis due to lack of clear responses to the items. Therefore, 150 participants (75 men and 75 women) responded to Alcohol Smoking and Substance Involvement Screening Test, Family-of-Origin Scale, Multidimensional Scale of Perceived Social Support, and Differentiation of Self Inventory. **Results:** The results of this study showed that the health of original family and social support at the family level were directly negative predictors of the severity of addiction ($P < 0.05$). The differentiation was not a direct predictor of severity of addiction ($P > 0.05$). The health of original family with the mediating role of differentiation of self was a negative predictor of severity of addiction ($P < 0.05$). Social support at the family level with the mediating role of differentiation of self was not a negative predictor of the severity of addiction ($P > 0.05$). **Conclusion:** In order to reduce the severity of addiction, it is necessary to improve the level of health of the original family, which leads to an increase in the degree of differentiation and, thus, decreases the severity of addiction. In addition, the promotion of the level of support provided by the family to these people is effective in reducing the severity of addiction.

Keywords: severity of addiction, health and support of the original family, differentiation of self

Structural Modeling of Addiction Severity based on the Health and Support of the Original Family through the Mediating Role of Differentiation of Self

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Introduction

One of the major biological, psychological, and social issues is substance abuse and dependence on it, which is undoubtedly affecting all countries in some way. The negative consequences of drug abuse are increasing every day, and the world has witnessed an astonishing increase in the prevalence of drug abuse in the last decade, especially in adolescents and young people (Soorizaei, Khalatbari, Keikhay, & Raiesifard, 2011). Addiction to legal and illegal drugs represents a serious problem in physical, psychological, and social health. Due to the complexity of the problems associated with addiction, a complex coping structure is needed to completely address all aspects of addicts' life and behavior patterns (Kajbaf & Rahimi, 2011).

The available evidence suggests that the biological, genetic, personality, psychological, cognitive, social, cultural, and environmental factors interact with each other to form drug abuse disorder. The biological- psychological- social model of addiction assumes that the biological / genetic, psychosocial, social, and cultural factors contribute to substance abuse, all of which must be considered in its prevention and treatment (Miller, 2013). An important point to be considered in terms of addiction is that addiction is a multidimensional phenomenon, that is, various factors interact with each other to lead a person to become addicted, continue addiction, and even return to addiction after withdrawal (Dodgen & Michael Shea, 2004). One of the most important and influential factors in drug abuse is family and its performance. Research has shown that problems in family functioning are related to antisocial behavior, aggression, and addiction in adolescents. In sum, the relationship between family function problems and addiction is significant (Agha, Zia, & Erfan, 2008). Miller, Anderson, & Keala (2004) concluded in their study that families of alcohol-dependent individuals reported more disruption in family functioning than other families.

Moreover, social support is one of the familial and social factors that can strengthen individuals against problems and socio-psychosocial harms such as drug abuse (Zafarkargar Yazdi, Kahani, Bakhshi, & Zamani, 2010). Social support refers to the mental sense of belonging to, being accepted, and being loved that create a secure relationship for individual; feeling of intimacy and proximity are among its characteristics (Amirpoor & Alavi, 2010). Support sources make a person to think that he/she is cared for, is loved, is valuable, and belongs to a network (Sohrabi & Najafi, 2008). In the absence of such support, the necessary grounds for substance abuse will be provided (Kamranpoor, 2010). Shucksmith, Glendinning, & Hendry (1997) found that the family environment without support has a reverse relationship with addiction behavior. Kodjo & Klein (2000) argue that parents should provide an emotional and lovely environment for their children in order to prevent drug abuse.

Living with parents, especially in the puberty period, having a good relationship with them (Nurco, Kinlock, Grady, & Hanlon, 1998), positive atmosphere at home (Nurco & Lerner, 1996; Nurco, Kinlock, Grady, & Hanlon, 1998), and strong emotional relationships in the family environment are among the important factors in preventing youth addiction (Robinson & Post, 1997). In addition, the greater the dependence of the individual on the family, the severity of doing the wrong action is reduced (Meshkati & Meshkati, 2002).

Moreover, family as the first base for personality formation is the most important factor in creating differentiation or emotional independence in individuals (Soleymannejad, 2009). Self-differentiation or differentiation of self, which is the most important concept of Bowen's system theory, is described as the ability to make a balance between emotional and rational autonomy, intimacy, and continuity in relationships (Meteyard, Andersen, & Marx, 2011). In Bowen's system theory, all signs including substance abuse have a positive relationship with failures in adapting to the system, little self-differentiation, and excessiveness in the emotional process (Heras, 2008). The Bowen Family Therapists (1978) believe that all disorders that exist in the family function including substance abuse result from inefficient management of anxiety in the family system, and addiction is seen as a way of controlling anxiety for individuals and families (Ghaffari, Rafiei, & Sanaei Zaker, 2009). Latty (2005) suggests that high differentiation is seen as a preserving factor against the risk of alcohol and drug use, and low differentiation can lead individuals to risk entering the individuals to a diagnostic category of addiction.

Therefore, it can be concluded that multiple factors are involved in the occurrence and severity of addiction. Although researchers and therapists tried to explain the factors associated with the incidence of addiction, so far, the number of factors contributing to the anthropology of addiction has not been addressed in a comprehensive way. Some works have addressed this issue or other aspects, and other variables of this problem have been studied. The multifactor approach to addiction leads to a more accurate and deeper understanding of addiction and sheds new light for thinkers in this field. To this end, this study aimed to simultaneously examine the health of the origin family, the perceived social support of the family, and the differentiation of self in the addicts, in order to determine the role of these factors in explaining the severity of addiction on the basis of a theoretical modeling and its analytical measurement.

Method

Population, sample, and sampling method

The method of this research is a descriptive-correlational method and of structural equation type. The statistical population consisted of all drug users (self-referenced and referred) to the Boarding Residential Health Center of Kosar (for men) and the Boarding Residential Health Center of Akbarabad

village (for women) in Mashhad in the last month of 2014 and the first four months of 2015 (N=300). Sample size was estimated to be 169 people based on Morgan sampling table. Finally, 19 questionnaires were excluded from the analysis due to lack of clear response to the items, and the study was conducted based on responses of 150 people to the questionnaires. The convenience sampling method was employed.

Instruments

1- Alcohol, Smoking, and Substance Involvement Screening Test: This test was prepared by the World Health Organization in 1998 using a team of international researchers and experts, and has been reviewed three times. This test is the first instrument that allows for the common addictive substances to be studied in ten categories. The scores obtained from this test for each specific substance separately determine whether a person is merely a user, a drug abuser, or an dependent; the test is able to simultaneously measure several materials for a single person in a single administration. It also describes the pattern of consumption for each material separately (Humenuik, Dennington, & Ali, 2008; Humenuik & Ali, 2006; World Health Organization, 2010). This test, in addition to providing some information about the type of dependency, measures the severity of consumption, patterns consumption, and the harms caused by the consumption based on each material separately. This instrument has validity, reliability, applicability, and the expected features of an appropriate test (WHO ASSIST working group, 2002). In the research conducted by the World Health Organization, the validity of the test was reported 0.80. The reliability of the test was examined using the internal consistency method and the coefficients were reported between 0.68 and 0.93. Evidence pertaining to the validity of the test in terms of content validity shows that the test measures the defined attribute correctly. In the criterion validity, coefficients rangig from 0.44 to 0.55 were obtained, which are considered as high coefficients (Sharifi, 1996). In this study, Cronbach's alpha coefficient was used to examine the internal consistency of the test and it was 0.93.

2. Family-of-Origin Scale: It is a 40-item test that has been formulated by Hovestadt, Anderson, Piercy, Cochran and Fine in 1985 to measure the individual's perceptions and inferences about the "health" of their original family. The "Family-of-Origin" scale focuses on autonomy and intimacy as two key concepts in the life of a healthy family. In this pattern, a healthy family gives autonomy to its members, and this autonomy is achieved by emphasizing on the explicitness of expression, responsibility, respect for others, openness with others, and acceptance and loss. A healthy family is considered to be a family that creates intimacy in the family environments and relationships. This would be done by encouraging the expression of all kinds of feelings, creating a warm atmosphere at home-morale and atmosphere, solving conflicts without creating unnecessary stress, developing sensitivity to mutual understanding, and building

trust in human beings based on the goodness of human natures. The most appropriate answers to each question (the aforementioned positive questions) score "5" and the answers far from the most appropriate answers (the aforementioned negative questions) score "1". The minimum and maximum of the total score or the sum scores for all questions are at 40 and 200 respectively, with the higher score indicating the more inference of the health of the family. The "Family-of-Origin" scale with the alpha of 0.75 and standardized alpha of 0.91 has a desirable internal consistency. This scale enjoys a great reliability since the test-retest reliability of 0.39 to 0.88 with the median of 0.77 was obtained for the dimension of autonomy (within a two-week interval); and the test-retest reliability of 0.46 to 0.87 with the median of 0.73 was obtained for the dimension of intimacy (within a two-week interval). In this study, the Cronbach's alpha coefficient was 0.972. Its content validity has been confirmed by several professors in the country (Sanei, Alagband, Falahati, Hooman, 2008).

3- Multidimensional Scale of Perceived Social Support: is a 12-item scale that has been developed by Zimet et al (1988) to assess the perceived social support from three sources of family, friends, and important individuals in life. The multidimensional scale of perceived social support measures the level of perceived social support by each person in each of the three mentioned areas. The score of this test is based on the Likert scale of 1 (completely disagree) to 7 (completely agree). To obtain the mean score of the whole test, all the statements are summed up and divided by the number of them (12). In order to obtain the score pertaining to each sub-scale, the scores of the statements corresponding to that subset are summed up and divided by the number of statements (4). A high score on this scale shows a high level of perceived social support. In this study, Cronbach's alpha coefficient was 0.968. The multidimensional scale of perceived social support enjoys a desirable factorial and concurrent validity because it has a negative correlation with depression and coronary heart disease in type A (Fischer & Concoran, 2006).

4- Differentiation of Self Inventory: It is a 46-item scale that has been developed by Skowron & Dendy (1998) to measure the differentiation of individuals. It has 4 subscales of emotional reactivity, I position, emotional escape, and fusion with others. It is scored based on a Likert scale ranging from 1 (almost never true) to 6 (almost always true). The maximum score is equal to 276. The lower score shows lower levels of differentiation (Sanaei, Alagheband, Falahati, & Hooman, 2008). In this study, Cronbach's alpha coefficient was 0.968. Ten experts in this field have questioned and approved its content validity (Sanaei, Alagheband, Falahati, & Hooman, 2008).

Results

Out of the 150 participants, 75 (50%) were male and 75 (50%) were female. With regard to the age, out of 75 men, 2 people (2.7%) were under 20 years of age, 25 people (33.3%) between 21 and 30 years, 38 people (50.7%) between 31

and 40 years old, 8 people (10.6%) between 41 to 50 years old, and 2 people (2.7%) more than 51 years old. Out of the 75 women examined, 2 people (2.7%) were under 20 years old, 22 people (29.3%) between 21 and 30 years old, 37 (49.3%) between 31 and 40 years old, and 14 (18.7%) between 41 to 50 years old. The mean age in men and women group was 33.3 (8.4) and 33.7 (6.7) years, respectively. Regarding the level of education, out of the 75 men, 20 people (26.6%) had under Diploma degree, 41 people (54.7%) Diplomas, 5 people (6.7%) Associate degree, and 9 (12%) Bachelor's degrees and higher. Out of f the 75 women, 57 people (76%) had under Diploma degree, and 18 people (24%) had Diplomas. In terms of marital status, out of 75 men, 30 people (40%) were single, 32 (42.7%) were married, 9 (12%) were divorced, and 4 (3.5%) were others. Out of the 75 women, 11 people (14.7%) were single, 37 people (49.3%) were married, 19 people (25.4%) were divorced, and 8 (10.6%) were others. After reviewing the literature and field studies, the conceptual model was presented as follows.

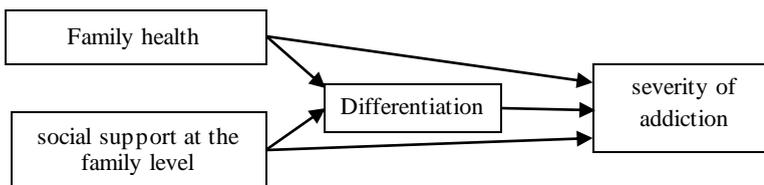


Chart 1: the Conceptual Model under investigation

To investigate the causal relationships between the variables of the current study, the structural equation modeling and software AMOS (23) were used. The fitting results of the model are presented in Module 2. Moreover, the goodness-of-fit indices are illustrated in Table 3.

Table 3: Fit indices for the model

Index	df/k ²	¹ RMSEA	² GFI	³ AGFI	⁴ CFI	⁵ NFI	⁶ NNFI	⁷ IFI
Calculated value	3/4	0.095	0.90	0.81	0.92	0.93	0.93	0.93
The accepted level	<5	<0.1	<0.90	<0.80	<0.90	<0.90	<0.90	<0.90

Table 4: direct and indirect effects with and without mediators

<i>Dependent / independent</i>	<i>direct effect)multiple regression (</i>	<i>direct effect)With the presence of mediator (</i>	<i>Indirect effect</i>
Family health: on the severity of addiction	(<0.001*) -0.960	-0.621 (<0.001*)	(0.187) -0.050
Perceived social support at the family level: on the severity of addiction	(<0.001*) -0.960	-0.125 (0.201)	(0.179) -0.021
Differentiation: on the severity of addiction	0.036 (0.079)	-0.054 (0.103)	-

1. Root-mean- square error of approximation
 2. Goodness- of-fit index
 3. Adjusted goodness -of-fit index

4. Comparative fit index
 5. Normed fit index
 6. Non-Normed fit index
 7. Incremental fit index

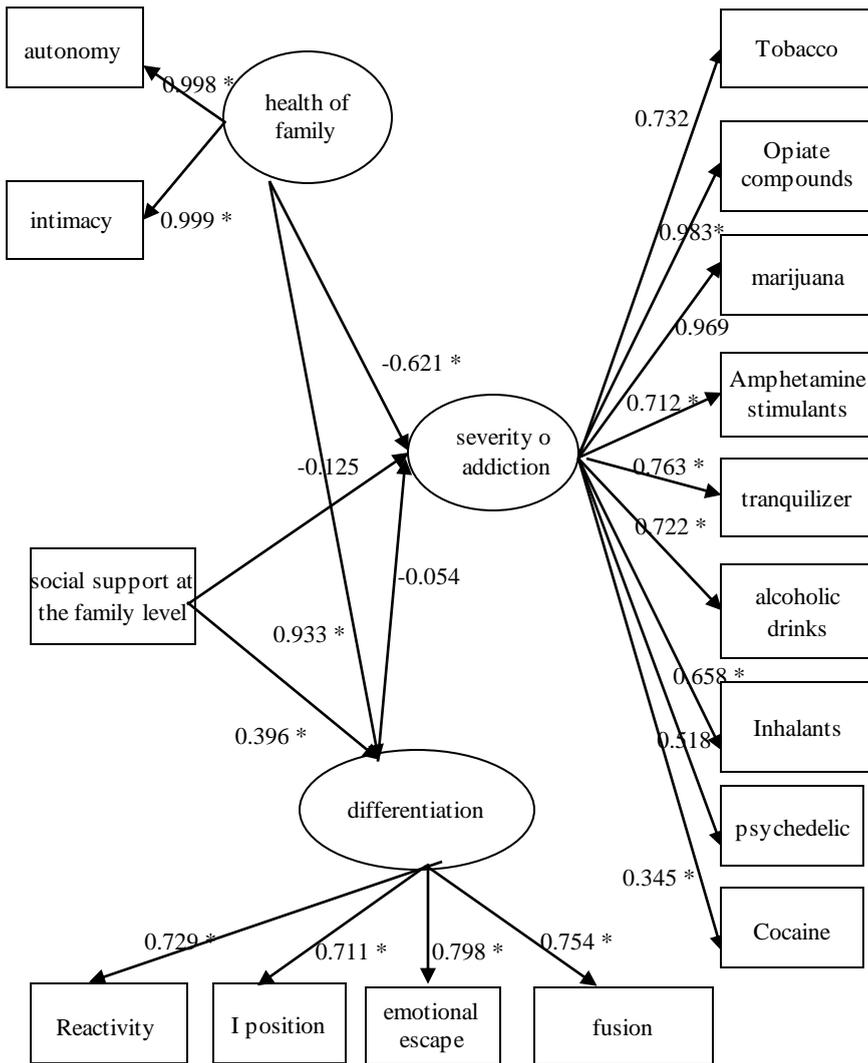


Figure 2: The values of standardized coefficients derived from structural equation modeling to examine the conceptual mode

The direct, indirect, and total effects are presented in the final model.

Table 5: Direct, indirect, and total effects in the final model (Structural Equation Modeling) to examine relationships

<i>Dependent / independent</i>	<i>Direct effect</i>		<i>Indirect effect</i>		<i>Total effect</i>	
	<i>Effect size</i>	<i>Significance</i>	<i>Effect size</i>	<i>Significance</i>	<i>Effect size</i>	<i>Significance</i>
Family health: on the severity of addiction	-0.621	<0.001*	-0.050	0.187	-0.671	0.016*
Perceived social support at the family level: on the severity of addiction	-0.125	0.201	-0.021	0.179	-0.146	0.611
Differentiation: on the severity of addiction	-0.054	0.103	-	-	-0.054	0.103

In Table 5, the direct effect is equivalent to the standardized coefficient of the multiple regression and time variables which a change in the variable X leads to a change in the variable Y ($X \rightarrow Y$). Indeed, in direct effect, each variable directly affects the cause. The indirect effect of each variable is equal to the product of the coefficients of the pathway of all the variables of a path leading to the dependent variable.

($X \rightarrow Z \rightarrow Y$). The total effect also indicates the sum of the direct and indirect effects of each variable. In fact, in indirect effect, each variable affects on cause by the correlation between the other variables. In this study, the direct effects of family health and the perceived social support at the family level on the severity of addiction has been estimated and reported with and without the mediator variables. Without considering differentiation as a mediator variable and in multiple regression, and by considering differentiation as a mediator variable, the structural equation modeling has been used. The indirect effects of these variables on the severity of addiction with the presence of a mediator variable have also been reported. Considering the differentiation as a mediator in the structural equation modeling based on Sobol test results, the indirect effect of the health of the origin family on severity of addiction is not significant. However, the total effect of the health of the origin family on the severity of addiction is non-significant and indirect. It can be concluded that the health of the origin family with differentiation as the mediator is a negative predictor for severity of addiction. That is, by increasing the health of the origin family through influencing on differentiation, the severity of addiction decreases. Considering the differentiation as a mediator in the structural equation modeling, based on the results of the Sobol test, the indirect effect of the perceived social support at the family level on severity of addiction is not significant; moreover, the total effect of social support at the family level on the severity of addiction is not significant.

Without considering differentiation as a mediator variable and in multiple regression, the direct effect of the health of the origin family on the severity of addiction is significant and indirect. The regression coefficient between these two variables indicates that for one unit of increase in family health variable, the severity of addiction is reduced to -0.960 unit of standard deviation. Considering the differentiation as a mediator variable and in the structural equation modeling, direct effect of family health variable on severity of addiction is significant and indirect. The regression coefficient between these two variables indicates that for one unit of increase in family health, the severity of addiction is reduced to -0.621 unit of standard deviation. Without considering the differentiation as a mediator variable and in multiple regression, the direct effect of the social support at the family level on the severity of addiction is reversely significance. The regression coefficient between these two variables indicates for one unit of increase in social support at the family level, the severity of addiction is reduced to -0.118 unit of standard deviation. It can be concluded that social support at the family level is a direct negative predictor of the severity of addiction. Considering the differentiation as a mediator variable and in the structural equation modeling, the direct effect of social support at the family level on the severity of addiction is non-significant and indirect.

Considering the differentiation as a predictor variable in multiple regression, the direct effect of the differentiation variable on the severity of addiction is non-significantly positive. Considering the differentiation as a predictor variable in the structural equation modeling, the direct effect of the differentiation variable on the severity of addiction is non-significantly negative. This was due to the high correlation between the predictive variables (family health, perceived social support at the family level, and differentiation). According to the correlation matrix, the relationship between the predictor and the criterion variables is strong and negative; on the other hand, the correlation between the predictor variables is also strong and positive. This high correlation caused the direct effect of differentiation on the severity of addiction to be non-significantly positive in the regression model. Finally, it should be noted that in the multiple regression model, 93.6% ($R^2 = 0.936$) of the changes of the severity of addiction have been explained by family health, perceived social support at the family level, and differentiation. In the structural equation modeling, 79.4% ($R^2 = 0.794$) of the differentiation changes have been explained by family health and the perceived social support at the family level; besides, 92.8% ($R^2 = 0.928$) of the changes of the severity of addiction have been explained by family health, the perceived social support, and differentiation.

Discussion and Conclusion

The present study was conducted to predict the severity of addiction based on the health and support of the origin family by mediating the differentiation variable in a group of drug addicts. The findings of this study revealed that the

health of the origin family was directly a negative predictor of the severity of addiction ($P < 0.05$). This finding was consistent with the results obtained by Asghari, Qasemi, and Qari (2014). They suggested that the health of the origin family could affect the readiness of the female university students to addiction. Furthermore, this finding was in line with the results obtained by Bayati (2010). He stated that in order to prevent the increase of addiction in women, we start from the family, and especially we should pay particular attention to mothers. Moreover, the results of this study were in agreement with those obtained by Hosseinbar, Bakhshani, and Shakiba (2012). The purpose of their study was to compare the dimensions of family functioning in the family of the addicted and non-addicted people; they revealed a significant difference in the mean score of these two groups. In explaining this finding it can be said that the proper family function is essential for the health of the individual, family, and community.

A family with a proper function can meet the emotional, psychological, and physical needs of its members. However, a family with inappropriate function is not able to meet the needs of its members. Failure to meet the needs of family members in different aspects can influence their physical, social, and emotional health. Research has shown that in families whose member relationships and interactions is based on proximity, intimacy, and mutual understanding between individuals, all members are relatively strong and immune to the pressures of life. Addiction is not an issue that has been created periodically and without conditions and underlying factors. New clinical findings suggest that the unhealthy growth grounds for addiction play an essential role in the formation of addiction (Zeinali, Vahdat, & Hamedniya, 2007).

Another finding of the current study was that the social support at the family level was a direct negative predictor of the severity of addiction ($P < 0.05$). This finding was in consistency with the results obtained by Ashrafi Hafez, Kazemini, and Shayan (2014). They indicated that there is a negative relationship between family support and the frequency of relapse in the treatment process. In fact, with increasing family support, the number of relapses in the treatment process is reduced. In addition, the results of the research was in agreement with those obtained by Tayebi, Abolqasemi, and Mahmoud Alilo (2012). They showed that addicts to psychedelics in comparison to drug addicts and normal people and drug addicts in comparison to normal people have less social support and suffer from multiple social deprivations.

In explaining these findings, it can be said that in studying the components of social relations, it was observed that most of the non-addicts had a relatively strong social relationship network, while most addicts had relatively weak social relationships. In fact, this conclusion, by inferring from Siegel's interactive theory (2001), indicates that as the individuals' social relationship network, especially family relationships, are stronger, their tendency to drug abuse would be less likely; as the person's relationship with his/her parents and his family members is better, the likelihood of his involvement in criminal behavior and

social harm is less and, conversely, the weakness of the links leads to abusive behaviors. Another finding of this study revealed that differentiation was not directly a negative predictor of the severity of addiction ($P < 0.05$). In explaining this finding, it can be said that this is due to the high correlation between predictive variables (family health, perceived social support at the family level, and differentiation). According to the correlation matrix, the relationship between the predictor and criterion variables is highly negative; on the other hand, the correlation between the predictive variables is also highly positive. This high correlation caused the direct effect of differentiation on the severity of addiction to be significantly positive in the regression model.

Furthermore, the results showed that the health of the origin family by mediating the differentiation was a negative predictor of the severity of addiction ($P < 0.05$). This finding was consistent with the results of the study conducted by Sadeghi, Fathizadeh, Ahmadi, Bahrami and Etemadi (2013). They suggest that based on the growth pattern, a healthy family is a family that has characteristics such as the use of healthy parenting methods, having consultation and decision making skills, satisfying the members' physical, mental, and affective needs, and providing their physical and mental health. In explaining this finding, according to Buboltz, Johnson, and Woller (2003), and Dmitrieva, Chen, Greenberger, and Gil-Rivas (2004), it can be said that the healthy functioning of the origin family helps the children to gain a positive identity, increase their autonomy, and reduce the likelihood of behavioral and communicative problems in the future. In line with the result of this hypothesis, it should be noted that the function of the origin family affects on the degree of differentiation of individuals. Based on the Bowen' theory of the family systems, a person's level of differentiation is mainly related to the interactive patterns of the family (Bowen, 1976). It can be argued that the health of the origin family, which emphasizes the two concepts of autonomy and intimacy, can affect the severity of addiction through the development of differentiation. Those who have not been trained to maintain a balance between intimacy and autonomy, are easily fused with others, and respond to the existing anxieties reactively due to lack of a family with an optimal level of health, are likely to add to their addiction severity every day. Because addiction and the conditions associated with it can also be regarded as an anxiety.

Another finding of this study was that the social support at the family level with mediating differentiation was not a negative predictor for the severity of addiction ($P < 0.05$). This finding was consistent with Macdonald's (2004) research findings, which showed that social support is not always a predictor of the improvement stages. In explaining this finding, it can be said that although family support can predict the individuals' severity of addiction, however, based on a systematic approach to the multiplicity of causes, one issue such as family support may not lead to this action through the influencing differentiation. Because some families may not naturally be aware of the quality of support they

provide to their own members, and they may start their excessive and sickening support after the occurrence of a stressful incident such as addiction. This time may also affect the differentiation, but before that, family support may influence on the differentiation and then on the severity of addiction through affecting on other mediating variables. Thus, it can be said that the differentiation of the addicts may have been formed under more effective factors than family support.

According to the findings of the present study, it is suggested that the basic actions for preventing addiction and its treatment be initiated from families. Learning the effective communication methods in the family, problem solving methods, solving conflicts, responding to and understanding the feelings and emotions, and the appropriate parenting methods can be effective. The family must also have collaboration and cooperation in the actions pertaining to the treatment of addiction, and a change in the whole family system should be made. One of the reasons that requires the family members to be supported and receive services is the systemic nature of the families. In one system, each section affects and is affected by all other sections. If the addict's treatment is done without any changes in the family system, the likelihood of returning to drugs will be high. Because it is assumed that the family system has an important role in the individuals' turn to addiction, and if the person returns to the same family with the previous functions, the change will not last. Therefore, both the prevention and treatment should start from the family.

One of the limitations of the present research is using the questionnaire and the degree of trust to the individuals' responses. Since the research participants have been selected based on convenience sampling, it can be said that this sample does not represent all substance abusers. As a result, generalizability must be conducted with caution.

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